



US009636163B2

(12) **United States Patent**  
**Lau et al.**

(10) **Patent No.:** **US 9,636,163 B2**

(45) **Date of Patent:** **May 2, 2017**

(54) **TISSUE WELDING AND CUTTING  
APPARATUS AND METHOD**

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(\*) Notice: Subject to any disclaimer, the term of this  
patent is extended or adjusted under 35  
U.S.C. 154(b) by 0 days.

(21) Appl. No.: **14/551,599**

(22) Filed: **Nov. 24, 2014**

(65) **Prior Publication Data**

US 2015/0164574 A1 Jun. 18, 2015

**Related U.S. Application Data**

(60) Division of application No. 13/494,985, filed on Jun.  
12, 2012, now Pat. No. 8,894,638, which is a  
(Continued)

(51) **Int. Cl.**  
**A61B 18/04** (2006.01)  
**A61B 18/08** (2006.01)  
(Continued)

(52) **U.S. Cl.**  
CPC ..... **A61B 18/085** (2013.01); **A61B 17/29**  
(2013.01); **A61B 18/1445** (2013.01); **A61B**  
**90/03** (2016.02);  
(Continued)

(58) **Field of Classification Search**

CPC ..... A61B 18/085  
See application file for complete search history.

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(57) **ABSTRACT**

A surgical apparatus and methods for severing and welding tissue, in particular blood vessels. The apparatus includes an elongated shaft having a pair of relatively movable jaws at a distal end thereof. A first heating element on one of the jaws is adapted to heat up to a first temperature and form a welded region within the tissue, while a second heating element on one of the jaws is adapted to heat up to a second temperature and sever the tissue within the welded region. The first and second heating elements may be provided on the same or opposite jaws. A control handle provided on the proximal end of the elongated shaft includes controls for opening and closing the jaws, and may include an actuator for sending current through the first and second heating elements. The first and second heating elements may be electrically connected in series, and the first heating element may be bifurcated such that it conducts about one half of the

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